CLAIMS

1. A packet control unit (Ra, Rb, Rc, Rd; PCU1-PCUn) for being included in a packet switched control network (PSCN) as one of a plurality of packet control units for controlling a packet traffic constituted by a plurality of packets (CP1-CPx) being routed between said packet control units along a plurality of packet routing links (PRL1-PRLm),

said packet switched control network (PSCN) being configured in such a way that said packet routing links (PRL1-PRLm) and said packet control units (Ra, Rb; PCU1-PCUn) respectively correspond to path sections (RDS1-RDSm) and path points (ICP1-ICPn) of an object movement network (RDN) in which an object traffic is formed by a plurality of objects (C1-Cx) moving along said path sections (RDS1-RDSm) between said path points (ICP1-ICPn), and

each path point (ICP1-ICPn) of said object movement network (RDN) having associated with it a traffic information unit (TIU1-TIUy) adapted at least to detect the arrival of objects (C1-Cx) at the path point (ICP1-ICPn) and to output a corresponding object arrival information (VAI1-VAIy), including

a transmission device (TR) adapted to send respective packets onto a packet routing link to a succeeding target packet control unit on the basis of a respective routing decision in accordance with a predetermined packet routing method used in said packet switched control network (PSCN) for the controlling of said packet traffic;

a reception device (REC) adapted to receive packets from other packet control units (PCU1-PCUn) of said packet

switched control network (PSCN) and at least one object arrival information (VAI1-VAIy) indicating the arrival of an object (CR1-CRx) at one of said path points (Px; ICP1-ICPn); and

a synchronisation device (SYNC) adapted to cause the sending of a packet corresponding to said object to the packet control unit (Rx) corresponding to said path point (Px) at which the object arrival was detected by its associated traffic information unit.

2. A packet control unit (Rx; PCU1-PCUn) for being included in a packet switched control network (PSCN) as one of a plurality of packet control units for controlling a packet traffic constituted by a plurality of packets (CP1-CPx) being routed between said packet control units along a plurality of packet routing links (PRL1-PRLm),

said packet switched control network (PSCN) being configured in such a way that said packet routing links (PRL1-PRLm) and said packet control units (Ra, Rb; PCU1-PCUn) respectively correspond to path sections (RDS1-RDSm) and path points (ICP1-ICPn) of an object movement network (RDN) in which an object traffic is formed by a plurality of objects (C1-Cx) moving along said path sections (RDS1-RDSm) between said path points (ICP1-ICPn), and

each path point (ICP1-ICPn) of said object movement network (RDN) having associated with it a traffic information unit (TIU1-TIUy) adapted at least to detect the arrival of objects (C1-Cx) at the path point (ICP1-ICPn) and to output a corresponding object arrival information (VAI1-VAIy), including

a transmission device (TR) adapted to send respective packets onto a packet routing link to a succeeding

target packet control unit on the basis of a respective routing decision in accordance with a predetermined packet routing method used in said packet switched control network (PSCN) for the controlling of said packet traffic;

a reception device (REC) adapted to receive packets from other packet control units (PCU1-PCUn) of said packet switched control network (PSCN) and an object arrival information (VAI1-VAIy) indicating the arrival of an object (CR1-CRx) at the path point (Px; ICP1-ICPn) corresponding to said packet control unit (Rx); and

a synchronisation device (SYNC) adapted to cause the sending of a packet corresponding to said object to the packet control unit (Rx) if a received object arrival information indicates the arrival of an object (CR1-CRx) at the path point (Px; ICP1-ICPn) corresponding to said packet control unit (Rx),

said reception device (REC) being also adapted to receive said sent packet corresponding to said object.

3. A packet control unit (Ra, Rb; PCU1-PCUn) for being included in a packet switched control network (PSCN) as one of a plurality of packet control units for controlling a packet traffic constituted by a plurality of packets (CP1-CPx) being routed between said packet control units along a plurality of packet routing links (PRL1-PRLm),

said packet switched control network (PSCN) being configured in such a way that said packet routing links (PRL1-PRLm) and said packet control units (Ra, Rb; PCU1-PCUn) respectively correspond to path sections (RDS1-RDSm) and path points (ICP1-ICPn) of an object movement network (RDN) in which an object

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information (vall-valy) are or more nath noints (px:

information (representation) at one or more nath noints (representation)
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                                                                                                                                                                                                                                                                                                                                                                     a synchronisation device (SYNC) adapted to delete a object (Rai Rb) if an object unit (Rai Rb) the arrival indicating the arrival packet information (VATI-VATV) indicating the arrival arrival
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Point (Pb) is not received recention device (REC).
                                                                                                                                                                                                                                                                                                                              ICPn); and
                                                                                                                                                                                                                                                                                                                                                                                                                                         point (PD) is not received Within a predetermined (REC).

by said reception device (REC).

interval (pl-p2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A packet control unit (Ra) according to claim 1,
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                                                                                A packet control unit (Rb, PCU) according to claim. 21

Characterized in that
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                                                                                                                                                                                                at said another packet control unit (Ra) (ph)
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                                                                                                                                                                                                                                                            characterized in that device (SYNC) is adapted to cause said synchronisation device (SYNC) to send to said narrow said synchronisation device (mp) to send to said transmission device (SYNC)
                                                                                                                                                                                                                                                                       said synchronisation device (SYNC) is adapted to cause to said packet (TR) to send to said path point (TR) said transmission corresponding to said transmission corresponding to said transmission corresponding to said path point (TR) corresponding to said transmission corresponding transmission corresponding to said transmission corresponding to said transmission corresponding tran
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Packet stored at packet control unit (Ra).
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to said target packet
                                                                                                                                                                                                                                                                                                                                                A Packet control unit (Ra) according to claim 1,
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                                                                                                                                                                                                                                                                                                                                                                        characterized in that device (SYNC) is adapted to store that the tarmore said synchronisation device (SYNC) indication the tarmore said synchronisation (pr.T) indication (
                                                                                                                                                                                                                                                                                                                                                                                   said synchronisation device (SYNC) indicating the target has been a packet link information to which the market has been a packet control unit
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packet control unit (RD) device (TR) wherein said
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                                                                                                                                                                                                                                                                                                                                                                                                                        sent by said transmission device (TR) wherein said the error synchronisation device (SYNC) is adapted to my the error synchronisation device (mit (Rh) identified my the error synchronisation device (nontrol mit (Rh) identified my the error target nacket control mit (Rh)
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packet control unit (Rx) corresponding to said path point (Px) at which the object arrival was detected.

- 8. A packet control unit (Ra) according to claim 1, characterized in that said synchronisation device (Ra), upon receipt of said object arrival information, is adapted to broadcast to all its adjacent packet control units (Rb, Rc) a packet search request (PFWD) to cause said target packet control unit (Rb) to send a packet to the packet control unit (Rx) corresponding to said path point (Px) at which the object arrival was detected.
- 9. A packet control unit (Ra) according to claim 3, characterized in that
 when said transmission device (TR) of said packet control unit (Ra) plans to sent a packet to its succeeding target packet control unit (Rb) and no object arrival information for an object corresponding to this packet is generated from the traffic information unit at the path point (Pb) corresponding to the target packet control unit (Rb) or any other packet control unit (e.g. Rx) within said predetermined time interval, said synchronisation device (SYNC) is adapted cause a deletion device (DEL) to cancel said packet before said transmission device (TR) sends it to said target packet control unit (Rb).
- 10. A packet control unit (Rx) according to claim 1, characterized in that said synchronisation device (SYNC) is adapted to cause a generation device (GEN) to generate a new packet and to cause said transmission device (TR) to send to said packet control unit (Rb) corresponding to said path point (Pb) at which the object arrival was detected said newly generated packet.

- 11. A traffic management system (TMSYS) for managing in a network (RDN) the object traffic formed, on a physical layer (PL), by
 - a1) a plurality of objects (C1-Cx) moving along
 - a2) a plurality of path sections (RDS1-RDSm) of the network (RDN) and
 - a3) a plurality of path points (ICP1-ICPn) located at said path sections (RDS1-RDSm) of the network (RDN), and
 - each path point (ICP1-ICPn) having associated with it a traffic information unit (TIU1-TIUy) adapted at least to detect the arrival of objects (C1-Cx) at the respective path point (ICP1-ICPn) and to output a corresponding object arrival information (VAI1-VAIy), comprising:
 - a packet switched control network (PSCN) on a traffic control layer (TCL) in which the packet traffic constituted by
 - b1) a plurality of packets (CP1-CPx) being routed along
 - b2) a plurality of packet routing links (PRL1-PRLm) is controlled by
 - b3) a plurality of packet control units (PCU1-PCUn) located at said packet routing links (PRL1-PRLm) for controlling the packet traffic in said packet switched control network (PSCN) such that each packet (CP1-CPx) routed along a respective packet routing link (PRL1-PRLm) corresponds to one object (CR1-CRx) moving on a corresponding path section (RDS1-RDSm);

b4) each packet control unit being constituted as defined in claim 1 or claim 2 or claim 3 and being adapted to send, with the respective transmission device (TR), as a source packet control unit respective packets onto a packet routing link to a succeeding target packet control unit on the basis of a respective routing decision in accordance with a predetermined packet routing method used in said packet switched control network (PSCN) for the controlling of said packet traffic;

wherein said packet switched control network (PSCN) on the traffic control layer (TCL) is configured in such a way that

- c1) packet routing links (PRL1-PRLm) correspond to path sections (RDS1-RDSm); and
- c2) packet control units (PCU1-PCUn) correspond to path
 points (ICP1-ICPn); wherein
- c3) when a traffic information unit (e.g. TIU1) detects the arrival of an object (C1-Cx) at its associated path point (e.g. Px) and outputs a corresponding object arrival information (VAI1-VAIy), and

an arrival packet control unit (e.g. Rx) corresponding to said path point (Px) does not detect the arrival of a packet corresponding to said object,

a synchronisation packet control unit (e.g. Ra) is adapted to send a packet corresponding to said object to said arrival packet control unit (Rx) to synchronize the packet routing and the object movement.

- 12. A system according to claim 11,

 characterized in that

 said traffic information units (TIU1-TIUy) are also
 adapted to guide an object onto a path section to a
 succeeding path point corresponding to a target packet
 control unit determined by the source packet control
 unit in accordance with said routing decision.
- 13. A system according to claim 11 including at least one packet control unit constituted as defined in claim 8, characterized in that said packet search request (PFWD) is constituted by a search packet (SP) sent to said adjacent packet control units.
- 14. A system according to claim 13,

 characterized in that

 said search packet (SP) comprises a life time field

 indicating the life time of said search packet (SP)

 wherein said adjacent packet control units comprise a

 deletion device (DEL) adapted to delete said search

 packet (SP) if the life time field indicates a life time

 exceeding a maximum allowable life time.
- 15. A method for managing in a network (RDN) the object traffic formed, on a physical layer (PL), by
 - a1) a plurality of objects (C1-Cx) moving along
 - a2) a plurality of path sections (RDS1-RDSm) of the network (RDN) and
 - a3) a plurality of path points (ICP1-ICPn) located at said path sections (RDS1-RDSm) of the network (RDN),

a4) each path point (ICP1-ICPn) having associated with it a traffic information unit (TIU1-TIUy) adapted at least to detect the arrival of objects (C1-Cx) at the respective path point (ICP1-ICPn) and to output a corresponding object arrival information (VAI1-VAIy),

by controlling in a packet switched control network (PSCN) on a traffic control layer (TCL) the packet traffic constituted by

- b1) a plurality of packets (CP1-CPx) being routed along
- b2) a plurality of packet routing links (PRL1-PRLm) by means of
- b3) a plurality of packet control units (PCU1-PCUn)
 located at said packet routing links (PRL1-PRLm);
- b4) each packet control unit being adapted to send as a source packet control unit respective packets onto a packet routing link to a succeeding target packet control unit on the basis of a respective routing decision in accordance with a predetermined packet routing method used in said packet switched control network (PSCN) for the controlling of said packet traffic;

wherein said packet switched control network (PSCN) on the traffic control layer (TCL) is configured in such a way that

- c1) packet routing links (PRL1-PRLm) correspond to path sections (RDS1-RDSm); and
- c2) packet control units (PCU1-PCUn) correspond to path points (ICP1-ICPn); and wherein said controlling of

said packet control unit is performed in such a way that

each packet (CP1-CPx) routed along a respective packet routing link (PRL1-PRLm) corresponds to one object (CR1-CRx) moving on a corresponding path section (RDS1-RDSm); comprising the following steps:

detecting an object arrival at one of said path points (Px; ICP1-ICPn) and generating a corresponding object arrival information (VAI1-VAIy); and

causing a packet control unit to send a packet corresponding to said object to the packet control unit (Rx) corresponding to said path point (Px) at which the object arrival was detected.